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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/035,618

12/28/2001

Nick A. Van Stralen

7589.0004

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7590

04/04/2006

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EXAMINER

TRAN, KHANH C

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/035,618	Applicant(s) VAN STRALEN ET AL.	
	Examiner Khanh Tran	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 9 is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/28/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Amendment filed on 01/10/2006 has been entered. Claims 1-9 are pending in this Office action.

Response to Arguments

2. Applicant's arguments filed on 01/10/2006 have been fully considered but they are not persuasive.

On page 2 of Applicants' Remarks, Applicants argue that Lindbom et al. fails to teach modeling the widening characteristics of digital system as set forth in the application claims.

The Examiner responds that Applicant's arguments are not persuasive. On page 5 of the original disclosure, the widening characteristics of the digital filter due to the non-zero filter coefficients. As recited in the last Office action, Lindbom et al. discusses that the channel is typically modeled as a complex valued finite impulse response filter (FIR) wherein the characteristics of the channel are taps or coefficients of the filter model. The equalizer requires knowledge of the channel characteristics, which requires that the channel characteristics be tracked if they vary with time. The algorithm that estimates the channel parameters uses detected data symbols as inputs. Because the equalizer tracks the channel characteristics, which are represented by the channel taps or coefficients of the filter model, the equalizer impliedly tracks or models the widening characteristics of the channel filter model even though Lindbom et al. does not

expressly discusses the widening characteristics of the digital filter as argued by Applicants.

For the above reasons, the Examiner maintains the rejection of claims 5-8.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindbom et al. U.S. Patent 5,581,580.

Regarding claim 5, in column 1, lines 10-30, Lindbom et al. discusses in the field of the invention that the channel is typically modeled as a complex valued finite impulse response filter (FIR) wherein the characteristics of the channel are taps or coefficients of the filter model. In order to track the channel characteristics during data detection, the equalizer has to operate in what is known as a "decision directed mode". This means that the algorithm that estimates the channel parameters uses detected data symbols as inputs. The equalizer requires knowledge of the channel characteristics, which requires that the channel characteristics be tracked if they vary with time. In view of the foregoing discussion, the equalizer tracks the channel characteristics that vary with time. The equalizer corresponds to the claimed tracking circuit, which models the delay and widening characteristic due to taps or coefficients of the filter model as recited

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above. The channel filter model corresponds to the claimed digital system. The equalizer operates in parallel with the filter model.

Regarding claim 6, as recited in claim 5, the channel is typically modeled as a complex valued finite impulse response filter (FIR) wherein the characteristics of the channel are taps or coefficients of the filter model. Hence, the FIR filter corresponds to the claimed digital filter.

Regarding claim 7, as recited in claim 5, the equalizer, corresponds to the claimed digital filter model, tracks the delay and the widening characteristics of the channel characteristics, which is typically modeled as a complex valued finite impulse response filter (FIR) wherein the characteristics of the channel are taps or coefficients of the filter model.

Regarding claim 8, claim 8 is rejected on the same ground as for claim 5 because of similar scope.

Allowable Subject Matter

4. Claims 1-3 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, claim 1 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of identifying distorted output signals from a digital system comprising the steps of "providing an input signal to the tracking circuit wherein the input signal has a first value when a distorted signal is input to the digital system and has a second value when a non-distorted signal is input to the digital system" and "providing an output signal from the tracking circuit wherein the output signal has a first value to indicate that a corresponding output signal from the digital system is distorted and has a second value to indicate that a corresponding output signal from the digital system is not distorted".

5. Claim 4 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding 4, claim 4 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of identifying distorted output signals from a digital filter comprising the steps as set forth in the application claim.

6. Claim 9 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding 9, claim 9 is allowed over prior art of record because the cited references taken individually or in combination fails to particularly disclose a method of identifying distorted output signals from a digital filter comprising the steps as set forth in the application claim.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh Cong Tran 04/02/2006
Primary Examiner KHANH TRAN